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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,613	03/30/2004	Shinpei Nagatani	1324.70221	4370
<div>7590 09/01/2009</div> <div>Patrick G. Burns, Esq. GREER, BURNS &amp; CRAIN, LTD. Suite 2500 300 South Wacker Drive Chicago, IL 60606</div>				
EXAMINER				
MA, CALVIN				
ART UNIT		PAPER NUMBER		
2629				
MAIL DATE		DELIVERY MODE		
09/01/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/813,613

**Applicant(s)**

NAGATANI ET AL.

**Examiner**

CALVIN C. MA

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 9, 34-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9 and 34-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The proposed reply filed on 10/22/2008 has been entered and considered, the new prior Cole et al. (US Patent 6,496,236) and Kim et al. (US Pub 2002/0001184) from the prior office action are introduced to address the new claimed limitations.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 27, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cole et al. (US Patent 6,496,236) in view of Kim.

As to claims 1 and 27, Cole teaches an illumination device (i.e. the CCFL backlight lamp 30 and 34) (see Fig. 3c) comprises:

a plurality of optical waveguide ( 76, 78) each including a plurality of separate light diffusion reflection layers thereon ( 26, 28) (see Fig. 3, Col. 3, Lines 54-67) for diffusing and reflecting guided light, a light emission surface for emitting the diffused light (24) (see Fig. 3c), and a plurality of light-emitting areas each corresponding to a location in which one of the light diffusion reflecting layers is formed and which light emitting areas are separated from each other (see Fig. 3c), the plurality of optical

waveguides being stacked so that the plurality of light-emitting areas are disposed almost complementarily and adjacent each other when viewed in a direction perpendicular to the light emission surface (see Fig. 3c); and

However Cole does not explicitly teach a plurality of light sources respectively disposed at ends of each of the plurality of optical waveguides but instead teaches only one lamp at one end of the waveguide. Kim teaches a plurality of light sources disposed on both ends of the optical waveguide (i.e. the multiple lighting unit 210 on both ends of the waveguide 400) (see Kim Fig. 4).

Therefore it would have been obvious for one of ordinary skill in the art at the time the invention was made to have adopted the design of having dual end lamps for each waveguide of Kim in the backlighting system of Cole in order to provide uniform luminance for the LCD system (see Kim [0007])

As to claim 36, see Claim 1 above, Cole and Kim together teaches an illumination device comprising:

a plurality of optical waveguides each including a plurality of separate light diffusion reflecting surfaces for diffusing and reflecting guided light, a light emission surface for emitting the diffused and reflected light, and a plurality of light-emitting areas each corresponding to a location in which one of the light diffusion reflecting surfaces is formed and which light emitting areas are separated from each other (see Cole, Fig. 3, Col. 3, Lines 54-67), the plurality of optical waveguides being stacked so that the plurality of light-emitting areas are disposed almost complementarily and adjacent each

other when viewed in a direction perpendicular to the light emission surface;

a plurality of light sources respectively disposed at ends of the plurality of optical waveguides (i.e. since the reflective diffuser 300 in the back of the waveguide is wider than the front diffusive element due to the necessary adaptation of the wave guide design of Kim where the front diffusers 500 are narrow and the back side layers corresponding to the next diffusive material would be broader so that the single wave guide design can be replaced by the double waveguide on of Col, therefore the layers would not exactly overlap each other)) (see Kim, Fig. 3, [0047]);

; and

a light source control system for sequentially intermittently turning on the plurality of light sources one at a time at a relatively high flashing frequency (i.e. the multiple lamp is able to constantly cycle through to pair down the current in order to prevent aging damage) (see Cole, Fig. 4, Col. 4, Lines 30-39).

As to claim 37, see Claim 1 above, Cole and Kim together teaches a display apparatus comprising:

a display panel (Cole 20) including a display area; an illumination device (Cole 30, 34) for illuminating the display area (see Cole Fig. 1);

a first substrate disposed above the illumination device (i.e. the bottom LCD substrate with back lighting system) (see Kim Fig. 1) ;

an opposite substrate disposed opposite the first substrate (i.e. the top LCD substrate with color filter) (see Fig. 1);

a color filter (Kim 820) formed on the opposite substrate (see Kim, Fig. 1, [0054]);  
and a liquid crystal sealed between said first substrate and the opposite substrate (see Cole, Fig. 1),

wherein said illumination device includes: a plurality of optical waveguides each including a plurality of separate light diffusion reflecting surfaces for diffusing and reflecting guided light, a light emission surface for emitting the diffused and reflected light, and a plurality of light-emitting areas each corresponding to a location in which one of the light diffusion reflecting surfaces is formed and which light emitting areas are separated from each other (see Cole, Fig. 3, Col. 3, Lines 54-67), the plurality of optical waveguides being stacked so that the plurality of light-emitting areas are disposed almost complementarily and adjacent each other when viewed in a direction perpendicular to the light emission surface (i.e. since the reflective diffuser 300 in the back of the waveguide is wider than the front diffusive element due to the necessary adaptation of the wave guide design of Kim where the front diffusers 500 are narrow and the back side layers corresponding to the next diffusive material would be broader so that the single wave guide design can be replaced by the double waveguide on of Col, therefore the layers would not exactly overlap each other)) (see Kim, Fig. 3, [0047]).;

a plurality of light sources respectively disposed at ends of the plurality of optical waveguides (see Kim, Fig. 1).

As to claim 2, Kim and Cole teaches wherein the light diffusion reflection layers are disposed not to overlap with each other between the plurality of optical waveguide when view in the direction perpendicular to the light emission surface (i.e. since the reflective diffuser 300 in the back of the waveguide is wider than the front diffusive element due to the necessary adaptation of the wave guide design of Kim where the front diffusers 500 are narrow and the back side layers corresponding to the next diffusive material would be broader so that the single wave guide design can be replaced by the double waveguide on of Col, therefore the layers would not exactly overlap each other)) (see Kim, Fig. 3, [0047]).

As to claim 3, Kim and Cole teaches wherein the light diffusion reflection layers are disposed to partially overlap with each other between the plurality of optical waveguide when view in the direction perpendicular to the light emission surface (i.e. since the entire optical wave guide are situated so that they are at least partially overlapped when considered as a whole unit) (see Kim Fig. 3, [0047]).

As to claim 4, Cole teaches further comprising light source control system for sequentially intermittently turning on the plurality of light sources one at a time. Beeteson teaches light source control system for sequentially intermittently turning on the plurality of light sources one at a time at a relatively high flashing frequency (i.e. the multiple lamp is able to constantly cycle through to pair down the current in order to prevent aging damage) (see Fig. 4, Col. 4, Lines 30-39).

As to claim 35, Kim teaches a display apparatus according to claim 27, further comprising: a first substrate disposed above the illumination device; an opposite substrate disposed opposite the first substrate; a color filter formed on the opposite substrate; and a liquid crystal sealed between said first substrate and the opposite substrate (see Fig. 1, [0054]).

As to claims 34 and 38-39, Cole teaches an illumination device, where said plurality of light sources each comprise a cold-cathode tube (see Fig. 1 Col. 2, Lines 20-32).

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-4, 27 and 34-39 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within



TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CALVIN C. MA whose telephone number is (571)270-1713. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on 571-272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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